

Title (en)

Method of doping a semiconductor surface by gaseous diffusion.

Title (de)

Verfahren zur Datierung einer Halbleiterfläche durch Gasdiffundieren.

Title (fr)

Méthode de dopage d'une surface semiconductrice par diffusion d'un gaz.

Publication

EP 0578996 A1 19940119 (EN)

Application

EP 93109876 A 19930621

Priority

US 91356092 A 19920714

Abstract (en)

A method is provided for diffusion doping of semiconductor chips and wafers, in particular silicon chips and wafers, at peak concentrations of greater than about 3×10^{19} atoms/cm³. The semiconducting material to be doped is placed in a furnace wherein the furnace contains an atmosphere of a carrier gas and a dopant containing gas. The doping containing gas is greater than about 0.1 volume percent of the total volume in the furnace chamber. The pressure of the composite gas is greater than about 0.1 Torr. The composite gas has an oxidizing agent concentration of less than about 1 part per million. The method permits the direct doping of a silicon surface to form a shallow n-doped region having a high peak concentration by a diffusion process thereby eliminating damage to the silicon surface from ion implantation which is the commonly used method to achieve these high doping concentrations. Since the method is nondirectional trench sidewalls can be doped at high concentrations. <IMAGE>

IPC 1-7

H01L 21/223

IPC 8 full level

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CPC (source: EP US)

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Citation (search report)

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